

We claim:

- 1 1. A method for the preparation of a specimen for atom probe analysis comprising:
2 providing a slab of material from which the specimen will be taken or analyzed;
3 defining a plurality of posts in the slab; and
4 removing at least one post from the slab.
- 1 2. The method of claim 1 further comprising mounting the post on a pin.
- 1 3. The method of claim 1 further comprising shaping the post to a tip shape suitable
2 for use in the atom probe.
- 1 4. The method of claim 1 where defining a plurality of posts in the slab comprises
2 cross cutting grooves into the slab.
- 1 5. The method of claim 4 where cross cutting grooves into the slab comprising
2 cutting intersecting grooves with a saw.
- 1 6. The method of claim 5 where cutting intersecting grooves with a saw comprises
2 cutting at least two sets of parallel grooves at an arbitrarily chosen angle to each other.

1 7. The method of claim 4 where cross cutting grooves into the slab further
2 comprises filling each groove with a supporting material prior to cutting parallel or
3 intersecting grooves thereto.

1 8. The method of claim 1 where defining a plurality of posts in the slab comprises
2 forming a plurality of regularly shaped posts in the slab by uniformly removing material
3 around each post to isolate each post from each other post in the plurality of posts.

1 9. The method of claim 8 where uniformly removing material around each post to
2 isolate each post from each other post in the plurality of posts comprises removing the
3 material by mechanical means.

1 10. The method of claim 8 where uniformly removing material around each post to
2 isolate each post from each other post in the plurality of posts comprises removing the
3 material by electrical means.

1 11. The method of claim 8 where uniformly removing material around each post to
2 isolate each post from each other post in the plurality of posts comprises removing the
3 material by chemical means.

1 12. The method of claim 8 where uniformly removing material around each post to
2 isolate each post from each other post in the plurality of posts comprises removing the
3 material by laser means.

1 13. The method of claim 9 where removing the material by mechanical means
2 comprises removing the material with a dicing saw.

1 14. The method of claim 2 where removing at least one post from the slab comprises
2 fracturing a single post from the slab.

1 15. The method of claim 2 where removing at least one post from the slab comprises
2 separating a section from the slab which section includes more than one post
3 connected to the section to provide an array of posts.

1 16. The method of claim 3 where shaping the post to a tip shape suitable for use in
2 the atom probe comprises focus-ion-beam milling the post to a tip shape.

1 17. The method of claim 1 further comprising shaping each of the posts of the array
2 to a tip shape suitable for use in the atom probe while each post remains connected to
3 the section.

1 18. The method of claim 1 where defining a plurality of posts comprises shaping
 2 each of the posts of the array so that the posts are spaced by a predetermined distance
 3 to avoid interference between separate posts when subsequently used in an atom
 4 probe.

1 19. A source of specimens for use in atom probe analysis comprising a slab of
 2 material from which the specimen will be taken, which has been defined into a plurality
 3 of posts.

1 20. The source of claim 19 where at least one post is removed from the slab and the
 2 post has been shaped to a tip suitable for use in the atom probe.

1 21. The source of claim 19 where the plurality of posts defined in the slab have been
 2 defined by cross cutting grooves into the slab.

1 22. The source of claim 20 where the shaped post is focus-ion-beam milled to a tip
 2 shape.

1 23. The source of claim 22 where the slab has a flattened surface into which the
 2 posts are defined.

24. The source of claim 19 where defining a plurality of posts comprises shaping each of the posts of the array so that the posts are spaced by a predetermined distance to avoid interference between separate posts when subsequently used in an atom probe.